

Claims

- [c1] 1. A method for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:
determining route paths between blocks of the ASIC;
scanning the route paths for transmission line replacement candidates;
and
for each transmission line replacement candidate, automatically selecting a buffered wire or a transmission line to implement the route path.
- [c2] The method of claim 1, wherein determining route paths further comprises:
obtaining multiple route paths using wires with and without buffers.
- [c3] The method of claim 1, wherein a transmission line replacement candidate is selected from the group consisting of a route path the passes over a block of the ASIC and a route path that does not require a buffer.
- [c4] The method of claim 1, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
providing a look-up table containing process specific parameters of the transmission line.
- [c5] The method of claim 4, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
determining a length of the route path for the buffered wire;
determining a length of the route path for the transmission line, and
obtaining, based on the process specific parameters of the transmission

ine contained in the look-up table, a value for the transmission line;
comparing the value for the transmission line to a corresponding value
for the buffered wire; and
automatically selecting the buffered wire or the transmission line based
on the comparison.

[c6] The method of claim 5, wherein the value is signal delay per unit length.

[c7] The method of claim 1, wherein the transmission line comprises a
coplanar waveguide transmission line.

[c8] 8. A program product stored on a recordable medium for routing
communication lines between blocks of an application specific integrated
circuit (ASIC) which, when executed, comprises:
program code for determining route paths between blocks of the ASIC;
program code for scanning the route paths for transmission line
replacement candidates; and
program code for automatically selecting a buffered wire or a
transmission line to implement the route path, for each transmission line
replacement candidate.

[c9] The program product of claim 8, wherein the program code for
determining route paths further comprises:
program code for obtaining multiple route paths using wires with and
without buffers.

[c10] The program product of claim 8, wherein a transmission line replacement
candidate is selected from the group consisting of a route path the

passes over a block of the ASIC and a route path that does not require a buffer.

[c11] The program product of claim 8, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
program code for accessing a look-up table containing process specific parameters of the transmission line.

[c12] The program product of claim 11, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
program code for determining a length of the route path for the buffered wire;
program code for determining a length of the route path for the transmission line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;
program code for comparing the value for the transmission line to a corresponding value for the buffered wire; and
program code for automatically selecting the buffered wire or the transmission line based on the comparison.

[c13] The program product of claim 12, wherein the value is signal delay per unit length.

[c14] 14. A design tool for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:

a system for determining route paths between blocks of the ASIC;
a system for scanning the route paths for transmission line replacement candidates; and
a system for automatically selecting a buffered wire or a transmission line to implement the route path, for each transmission line replacement candidate.

[c15] The design tool of claim 14, wherein the system for determining route paths further comprises:

a system for obtaining multiple route paths using wires with and without buffers.

[c16] The design tool of claim 14, wherein a transmission line replacement candidate is selected from the group consisting of a route path the passes over a block of the ASIC and a route path that does not require a buffer.

[c17] The design tool of claim 14, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

a look-up table containing process specific parameters of the transmission line.

[c18] The design tool of claim 17, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

a system for determining a length of the route path for the buffered wire;
a system for determining a length of the route path for the transmission

line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;

a system for comparing the value for the transmission line to a corresponding value for the buffered wire; and

a system for automatically selecting the buffered wire or the transmission line based on the comparison.

[c19] The design tool of claim 18, wherein the value is signal delay per unit length.

[c20] The design tool of claim 14, wherein the transmission line comprises a coplanar waveguide transmission line